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10/524,414	02/14/2005	Masatoshi Yanagidaira	041465-5257	4579

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EXAMINER	
ASTORINO, MICHAEL C	
ART UNIT	PAPER NUMBER
3736	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,414	YANAGIDAIRA ET AL.	
	Examiner	Art Unit	
	Filip A. Kowalewski	3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-20 and 22-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 8-20, and 22-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,714,874 to Morris et al. (hereinafter Morris).

Morris discloses the following claim limitations:

Claim 28. A paint for a biological information detecting member that constitutes a detecting member for detecting biological information from a subject, wherein the paint for a biological information detecting member comprises a conductive material having a volume resistivity of not more than 25 Ωcm, epoxy resin, and a curing agent (Col. 4 – Ln. 51, 58-67 & Col. 5 – Ln. 1-6); and

wherein the conductive material comprises at least one of metal oxide, which is transparent and has electrical conductivity, and polymer, which is transparent and has electrical conductivity (Col. 4 – Ln. 29-45).

Claim 29. The paint for a biological information detecting member according to claim 28, wherein the conductive material comprises at least one of silver, nickel, gold

(Col. 4 – Ln. 50-51), palladium, carbon, and carbon nanotube.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 8, 9, 17, 19, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,826,246 to Raddi et al. (hereinafter Raddi) as in view of Morris.

In regard to claims 1 and 18, Raddi discloses an apparatus for detecting biological information comprising: a contact member arranged to come into contact with a subject of biological information (Fig. 3 – 50 stretch band); a biological information detecting member provided in the contact member and detects the biological information from the subject (Fig. 1 – 18 and 20 electrodes); and an amplifier connected to the biological information detecting member and amplifies a biological signal corresponding to the detected biological information (Fig. 1 – 22 amplifier), wherein a sum of a resistance between the biological information detecting member and the amplifier (Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.), and an impedance between the subject in contact with the contact member and the biological information detecting member (Col. 2 – Ln. 65-67,

skin to electrode impedance = 1,000 ohms), is not more than fraction (1/100) of an input impedance in the amplifier (Col. 3 – Ln. 1, amplifier input impedance = 1 megohm), and wherein a resistance of the biological information detecting member is not more than 5 kΩ (Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms), but does not disclose that the biological information detecting member comprises a material containing at least one of metal oxide and polymer. However, Morris, a reference in the analogous are of electrical biological testing instruments, discloses a material for a biological information detecting member having a polymer (Morris, Col. 4 – Ln. 29-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the paste or paint disclosed in Morris for the conductive cream disclosed in Raddi, since said paste or paint has a lower electrical resistivity than said conductive cream and lowering impedance between the skin and electrode improves the accuracy of measurements (Raddi, Col. 3 – Ln. 30-40).

Claim 2. The apparatus for detecting biological information according to claim 1, wherein a sum of a resistance between the biological information detecting member and the amplifier (Raddi, Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.), and an impedance between the subject in contact with the contact member and the biological information detecting member (Raddi, Col. 2 – Ln. 65-67, skin to electrode impedance = 1,000 ohms), is not more than 10 kΩ.

Claim 3. The apparatus for detecting biological information according to claim 1, wherein a resistance between the biological information detecting member and the amplifier is not more than 1/200 of an input impedance in the amplifier (Raddi, Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.).

Claim 4. The apparatus for detecting biological information according to claim 1, wherein a resistance between the biological information detecting member and the amplifier is not more than 5 kΩ (Raddi, Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.).

In regard to claims 5 and 19, Raddi discloses an apparatus for detecting biological information including a contact member, biological information detecting member, and amplifier, as discussed above in regard to claim 1, but does not disclose that the biological information detecting member comprises a material having a volume resistivity of 25 Ωcm. However, Morris, a reference in the analogous are of electrical biological testing instruments, discloses a material for a biological information detecting member having a volume resistivity of 25 Ωcm (Morris, Col. 4 – Ln. 51, 58-67 & Col. 5 – Ln. 1-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the paste or paint disclosed in Morris for the conductive cream disclosed in Raddi, since said paste or paint has a lower electrical resistivity than

said conductive cream and lowering impedance between the skin and electrode improves the accuracy of measurements (Raddi, Col. 3 – Ln. 30-40).

Claim 6. The apparatus for detecting biological information according to claim 1, wherein the biological information detecting member comprises a material containing at least one of silver, nickel, gold, palladium, carbon (Raddi, Col. 6 – Ln. 55-60), and carbon nanotube.

Claim 8. The apparatus for detecting biological information according to claim 1, wherein an impedance between the subject in contact with the contact member and the biological information detecting member (Raddi, Col. 2 – Ln. 65-67, skin to electrode impedance = 1,000 ohms) is not more than (1/200) of an input impedance in the amplifier (Raddi, Col. 3 – Ln. 1, amplifier input impedance = 1 megohm).

Claim 9. The apparatus for detecting biological information according to claim 1, wherein an impedance between the subject in contact with the contact member and the biological information detecting member is not more than 5 kΩ (Raddi, Col. 2 – Ln. 65-67, skin to electrode impedance = 1,000 ohms).

In regard to claims 17 and 27, Raddi discloses an apparatus for detecting biological information including a contact member, biological information detecting member, and amplifier, as discussed above in regard to claim 1, but does not disclose

that the biological information detecting member comprising a conductive resin layer. However, Morris, a reference in the analogous are of electrical biological testing instruments, discloses a material for a biological information detecting member having a conductive epoxy resin layer (Morris, Col. 4 – Ln. 38-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the resin disclosed in Morris for the conductive cream disclosed in Raddi, since said resin has a lower electrical resistivity than said conductive cream and lowering impedance between the skin and electrode improves the accuracy of measurements (Raddi, Col. 3 – Ln. 30-40).

Claim 20. The contact member according to claim 18, wherein the biological information detecting member comprises a material containing at least one of silver, nickel, gold, palladium, carbon (Raddi, Col. 6 – Ln. 55-60), and carbon nanotube.

Claims 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raddi and Morris as applied to claims 1 and 18 above, in view of U.S. Patent No. 5,685,316 to Schookin et al. (hereinafter Schookin).

In regard to claims 10 and 22, Raddi and Morris discloses an apparatus for detecting biological information including a contact member, biological information detecting member comprising a metal oxide or polymer material with resistance not more than 5 kΩ, and amplifier, as discussed above in regard to claims 1 and 18, but does not disclose an area of contact with the subject is not less than 2 cm^2. However,

Schookin '316, a reference in the analogous of electrocardiography, discloses electrodes with a contact area of 12 to 30 cm^2 (Schookin, Col. 5 – Ln. 10-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the biological information detecting member disclosed in Raddi and Morris to have a contact area of 12 to 30 cm^2, since such a contact area range is necessary to provide a sufficient depth of measurement to ensure accuracy (Schookin, Col. 5 – Ln. 10-30).

Claims 1, 11-16, 18, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,572,207 to Yoshimi et al. (hereinafter Yoshimi) in view of Raddi, in further view of Morris.

In regard to claim 1, Yoshimi discloses a contact member (Fig. 1A – 4 steering wheel), a biological information detecting member (Fig. 1A – 1 & 2 electrodes), and an amplifier (Fig. 2A – 31 Amplifier Circuit), but does not disclose the sum of the impedance between the person and biological information detecting member and resistance between the biological information detecting member and amplifier as being less than 1/100 of the input impedance of the amplifier and that the biological information detecting member comprises a material containing at least one of metal oxide and polymer. However, Raddi discloses a sum of a resistance between the biological information detecting member and the amplifier (Raddi, Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.), and an impedance between the subject in contact with the contact member and the biological

information detecting member (Raddi, Col. 2 – Ln. 65-67, skin to electrode impedance = 1,000 ohms), is not more than fraction (1/100) of an input impedance in the amplifier (Raddi, Col. 3 – Ln. 1, amplifier input impedance = 1 megohm). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected the resistance and impedance characteristics disclosed in Raddi for the circuit disclosed in Yasushi '246, since impedance between the skin and detecting member must be low to minimize error caused by the high input impedance of the amplifier (Raddi, Col. 3 – Ln. 30-40) and the resistance between the detecting member and amplifier must be large compared to impedance between the right and left arm of the patient (Raddi, Col. 6 – Ln. 1-14) in order to make accurate measurements.

Yoshimi and Raddi disclose a contact member (Fig. 1A – 4 steering wheel), a biological information detecting member (Fig. 1A – 1 & 2 electrodes), and an amplifier (Fig. 2A – 31 Amplifier Circuit), a particular impedance and resistance, but do not disclose that the biological information detecting member comprises a material containing at least one of metal oxide and polymer. However, Morris, a reference in the analogous are of electrical biological testing instruments, discloses a material for a biological information detecting member having a polymer (Morris, Col. 4 – Ln. 29-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the paste or paint disclosed in Morris for the conductive cream disclosed in Raddi, since said paste or paint has a lower electrical resistivity than said conductive cream and lowering impedance between the skin and electrode improves the accuracy of measurements (Raddi, Col. 3 – Ln. 30-40).

Claim 11. The apparatus for detecting biological information according to claim 1, wherein the contact member comprises a controller used for at least one of an automobile (Yoshimi, Fig. 1A – 4 steering wheel), a ship, and an airplane.

Claim 12. The apparatus for detecting biological information according to claim 1, wherein the contact member comprises a controller, used for controlling at least one of an automobile, a ship, and an airplane, and an auxiliary contact piece (Yoshimi, Fig. 4 – 10 Shift Lever), constituted to assist a subject controlling at least one of the automobile, the ship, and the airplane using the controller when the subject comes into contact with the auxiliary contact piece.

Claim 13, the apparatus for detecting biological information according to claim 12, wherein in the case in which said apparatus for detecting biological information is provided in the automobile, the auxiliary contact piece is at least one of a side brake piece, an armrest piece, and a shift lever piece (Yoshimi, Fig. 3 – 10 Shift Lever).

Claim 14, the apparatus for detecting biological information according to claim 12, wherein one of the biological information detecting members provided in the controller, and one of the biological information detecting members provided in the auxiliary contact piece, are connected (Yoshimi, Fig. 3 – an electrical connection

between the shift lever 10 and steering wheel 4 is depicted).

Claim 15, the apparatus for detecting biological information according to claim 12, wherein the amplifier amplifies the biological signal detected by one of the biological information detecting member provided in the controller, and the biological information detecting members provided in the auxiliary contact piece, with which the subject is in contact (Yoshimi, Col. 2 – Ln. 10-20).

Claim 16, the apparatus for detecting biological information according to claim 12, wherein in the case in which the amplifier amplifies the biological signals from the biological information detecting member of two lines, the amplifier amplifies the biological signal, which is detected when the subject comes into contact with the biological information detecting member provided in the controller of one of two lines, and the biological signal, which is detected by one of the biological information detecting member provided in the controller of another one line of two lines and the biological information detecting member provided in the auxiliary contact piece of said another one of two lines, with which the subject is in contact (Yoshimi, Col. 4 – Ln. 17-23).

In regard to claim 18, Yoshimi discloses a contact member (Fig. 1A – 4 steering wheel), a biological information detecting member (Fig. 1A – 1 & 2 electrodes), an amplifier (Fig. 2A – 31 Amplifier Circuit), and an auxiliary contact piece (Fig. 4 – 10 Shift Lever), but does not disclose the sum of the impedance between the person and

biological information detecting member and resistance between the biological information detecting member and amplifier as being less than 1/100 of the input impedance of the amplifier, wherein the resistance of the detecting member is not more than 5 kΩ. However, Raddi discloses a sum of a resistance between the biological information detecting member and the amplifier (Raddi, Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.), and an impedance between the subject in contact with the contact member and the biological information detecting member (Raddi, Col. 2 – Ln. 65-67, skin to electrode impedance = 1,000 ohms), is not more than fraction (1/100) of an input impedance in the amplifier (Raddi, Col. 3 – Ln. 1, amplifier input impedance = 1 megohm), wherein a resistance of the biological information detecting member is not more than 5 kΩ (Raddi, Col. 6 – Ln. 9-13, R1 plus R2 should be in the range from about 1,000 ohms to about 20,000 ohms.). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected the resistance and impedance characteristics disclosed in Raddi for the circuit disclosed in Yoshimi, since impedance between the skin and detecting member must be low to minimize error caused by the high input impedance of the amplifier (Raddi, Col. 3 – Ln. 30-40) and the resistance between the detecting member and amplifier must be large compared to impedance between the right and left arm of the patient (Raddi, Col. 6 – Ln. 1-14) in order to make accurate measurements.

Yoshimi and Raddi disclose a contact member (Yoshimi, Fig. 1A – 4 steering wheel), a biological information detecting member (Yoshimi, Fig. 1A – 1 & 2 electrodes), and an amplifier (Yoshimi, Fig. 2A – 31 Amplifier Circuit), a particular impedance and

resistance, but do not disclose that the biological information detecting member comprises a material containing at least one of metal oxide and polymer. However, Morris, a reference in the analogous are of electrical biological testing instruments, discloses a material for a biological information detecting member having a polymer (Morris, Col. 4 – Ln. 29-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the paste or paint disclosed in Morris for the conductive cream disclosed in Raddi, since said paste or paint has a lower electrical resistivity than said conductive cream and lowering impedance between the skin and electrode improves the accuracy of measurements (Raddi, Col. 3 – Ln. 30-40).

Claim 23. The contact member according to claim 18, wherein the contact member comprises a controller used for at least one of an automobile (Yoshimi, Fig. 1A – 4 steering wheel), a ship, and an airplane.

Claim 24, The contact member according to claim 18, wherein the contact member comprises a controller, which is used for controlling at least one of an automobile (Yoshimi, Fig. 1A – 4 steering wheel), a ship, and an airplane, and an auxiliary contact piece, which is constituted to assist a subject controlling at least one of the automobile, the ship, and the airplane using the controller when the subject comes into contact with the auxiliary contact piece (Yoshimi, Fig. 4 – 10 Shift Lever).

Claim 25, The contact member according to claim 24, wherein in the case in which the contact member is provided in the automobile, the auxiliary contact piece is at least one of a side brake piece, an armrest piece, and a shift lever piece (Yoshimi, Fig. 4 – 10 Shift Lever).

Claim 26, The contact member according to claim 24, wherein the biological information detecting member provided in the controller and the biological information detecting member provided in the auxiliary contact piece are connected (Yoshimi, Fig. 3 – an electrical connection between the shift lever 10 and steering wheel 4 is depicted).

Response to Arguments

Applicant's arguments filed 11/13/2006 have been fully considered but they are not persuasive.

Applicants have amended independent claims 1, 18, and 28 to include subject matter previously found in claims 7, 21, and 30. Applicants have based patentability entirely on this subject matter and asserted that "Applicants have studied the references cited in the Office Action and have concluded that the material ... is not disclosed in these references". However, Applicants have failed to address the 35 USC 103(a) rejections of claims 7 and 21 over Raddi in view of Morris and the 35 USC 102(b) rejection of claim 30 over Morris. In the previous Office Action, Examiner provided a detailed rejection of claims 7, 21, and 30, which have now essentially been converted

into independent form. Applicant has not met the burden of traversing these or any other of the rejections from the previous Office Action. Applicant has merely provided a brief description of the subject matter from claims 7, 21, and 30 along with an unsupported assertion that the subject matter is not disclosed in the cited references. Accordingly, the above rejection is being presented to reject the claims and subject matter as currently presented. However, the references cited and nature of the rejection remain substantially the same as in the previous Office Action, since Applicants have not met their burden of traversing the rejection and adequately distinguishing the claimed invention from the cited prior art.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip A. Kowalewski whose telephone number is 571-272-5668. The examiner can normally be reached on Monday - Friday: 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Filip A. Kowalewski
January 25, 2007